PCG-R505EL/R505ELK/R505ES/ R505ESK/R505ESP

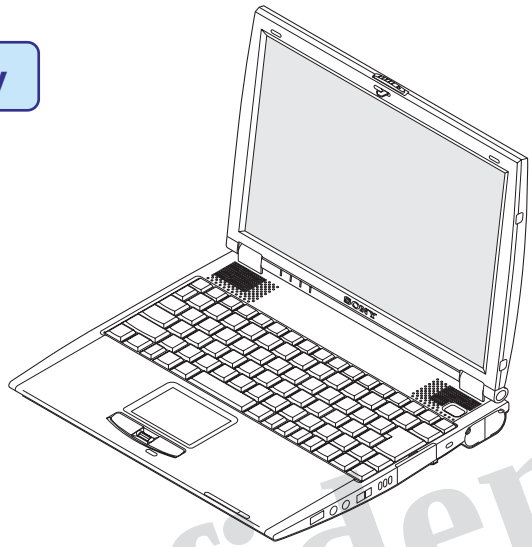
SERVICE MANUAL

For American Area

US Model
Canadian Model

Ver. 1-2002E

Revision History



Lineup: PCG-R505EL
PCG-R505ELK
PCG-R505ES
PCG-R505ESK
PCG-R505ESP

Confidential

- Design and specifications are subject to change without notice.

Notebook Computer

SONY

9-874-557-01

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Caution Markings for Lithium/Ion Battery - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.
Dispose of used battery promptly.
Keep away from children.

CAUTION: Changing the back up battery.

- Overcharging, short circuiting, reverse charging, multilation or incineration of the cells must bi avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.

Service and Inspection Precautions

1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

2. Use designated parts only

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the ⚠ mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

6. When handling flexible print boards...

- The temperature of the soldering-iron tip should be about 270C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

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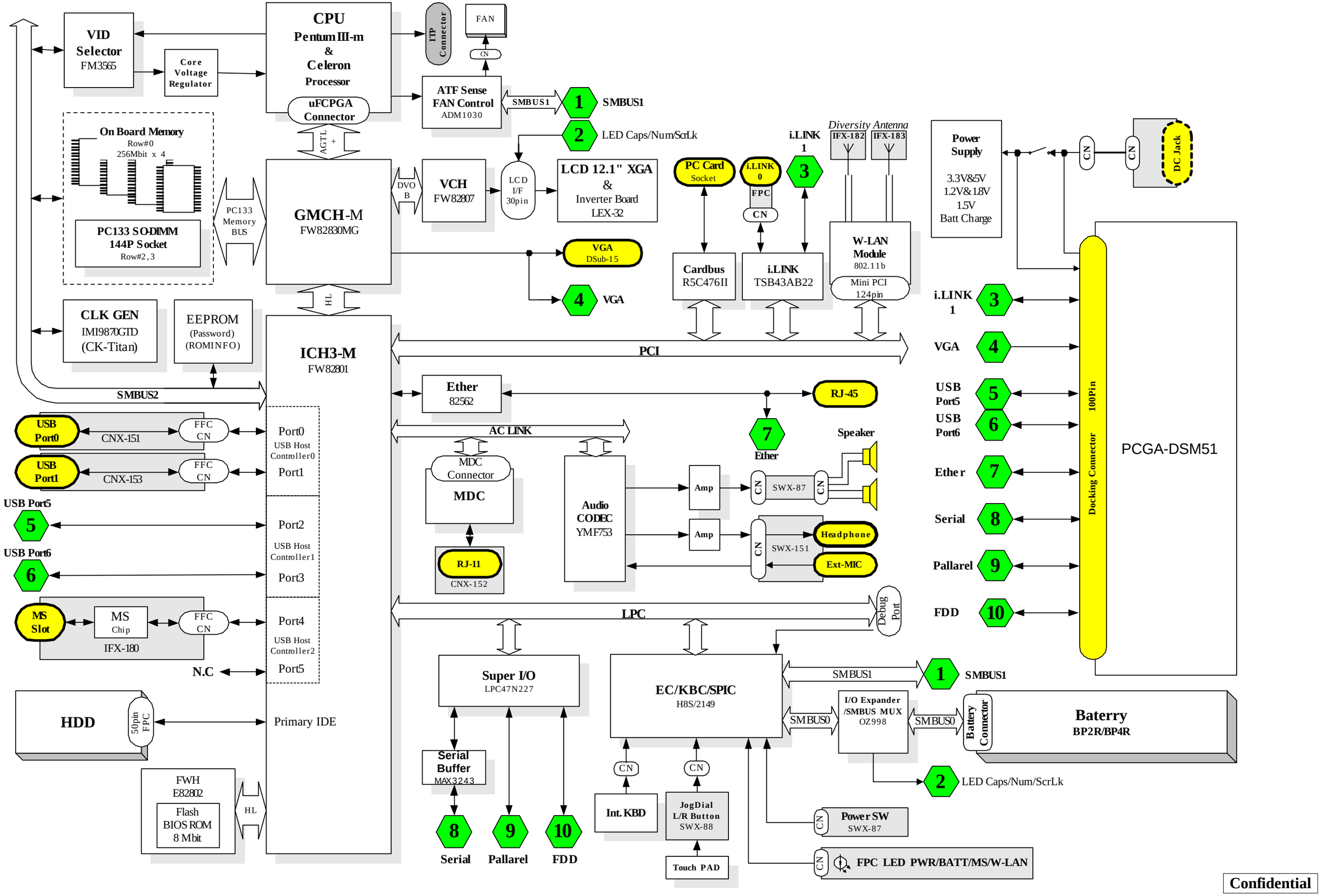
- Abbreviations
  UC : US model / Canadian model

History of the changes is shown as the “Revision History” at the end of this data.

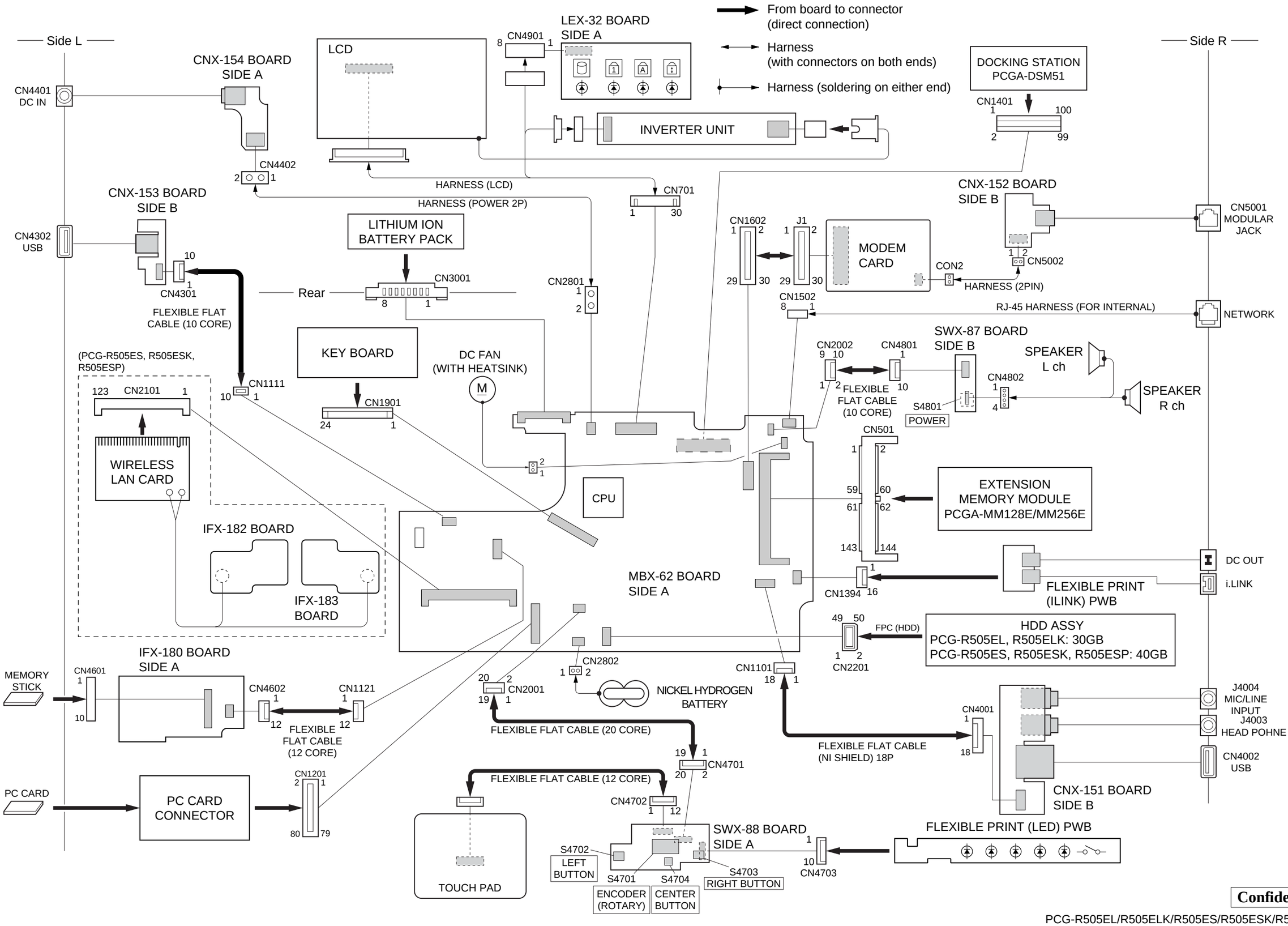
CHAPTER 1.

BLOCK DIAGRAM



CHAPTER 2.

FRAME HARNESS DIAGRAM



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CHAPTER 3.
EXPLODED VIEWS AND PARTS LIST

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- When two or more parts are shown in parallel, use the part described first as the main part.
- The parts marked " $ " are the High Value Modules.
- The parts marked " # " are the parts on which barcode label is attached.
  For the barcode label, refer to CHAPTER 4.

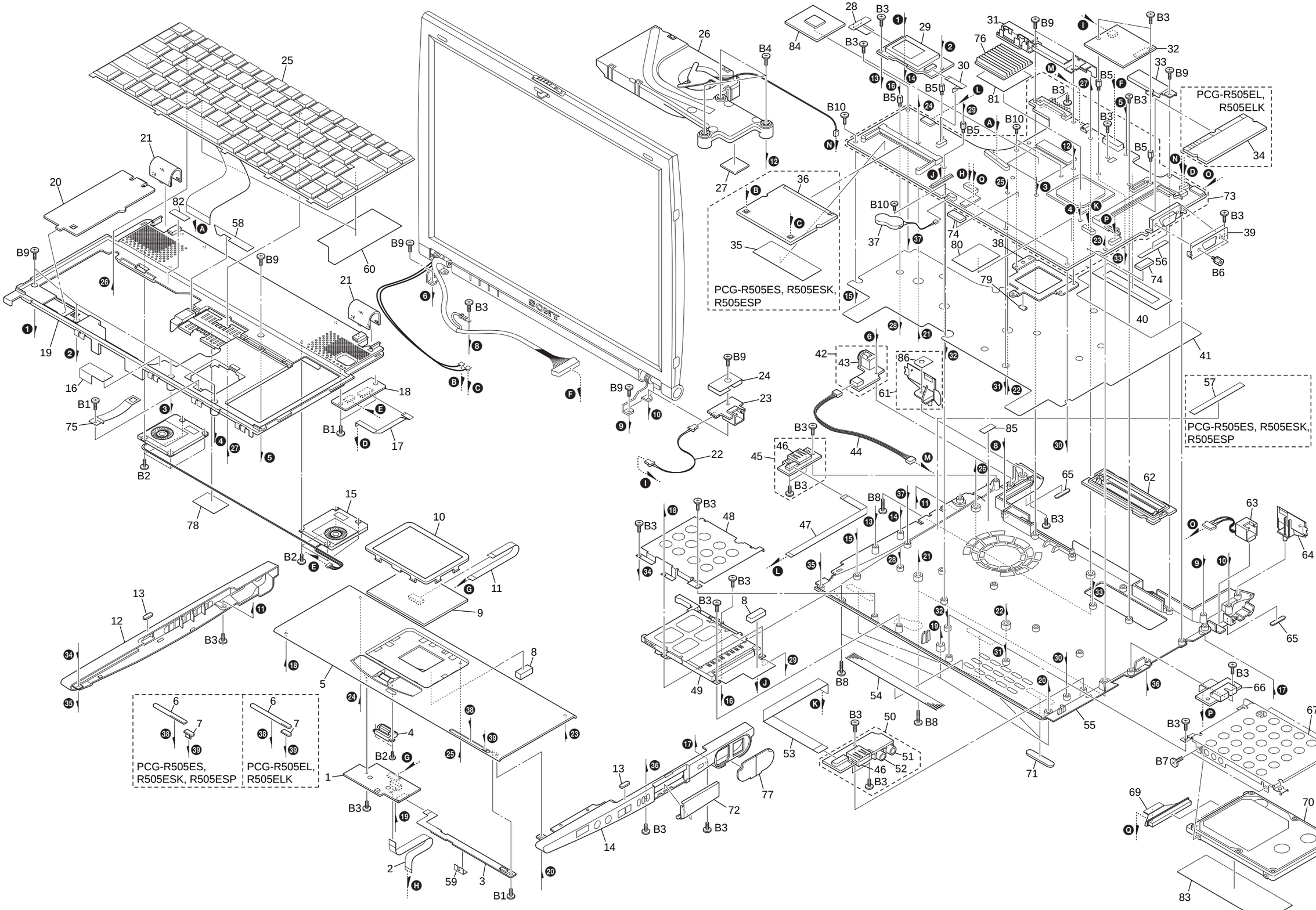
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

3-1. MAIN SECTION

Ref.No.	Part No.	Description
1	A-8067-340-A	COMPLETE PWB SWX-88
2	1-823-811-11	CABLE, FLEXIBLE FLAT 20P
3	1-763-819-11	PWB, FLEXIBLE PRINT (FRONT LED)
4	1-476-762-32	ENCODER (ROTARY)
5	X-4624-454-2	(R505ES, R505ESK, R505ESP)... HOUSING (PALMREST) (A) ASSY
5	X-4624-466-2	(R505EL, R505ELK)... HOUSING (PALMREST) (B) ASSY
6	4-660-060-01	(R505ES, R505ESK, R505ESP)... COVER (PALM), LENS
6	4-660-223-01	(R505EL, R505ELK)... COVER (PALM) (B), LENS
7	4-660-058-01	(R505ES, R505ESK, R505ESP)... KNOB, SLIDE
7	4-660-603-01	(R505EL, R505ELK)... SPACER (LENS COVER)
8	4-654-382-01	CUSHION HDD CONNECTOR
9	1-796-319-11	PAD, TOUCH
10	4-660-059-02	ESCUTHEON (PAD)
11	1-823-813-11	CABLE, FLEXIBLE FLAT 12P
12	X-4624-451-1	COVER (SIDE L) ASSY
13	4-660-456-01	CUSHION (COVER SIDE)
14	X-4624-452-1	COVER (SIDE R) ASSY
15	1-825-082-11	SPEAKER, (2.0CM) BOX WITH
16	4-662-617-01	SHEET (FAN), INSULATING
17	1-823-812-11	CABLE, FLEXIBLE FLAT 10P
18	A-8067-331-A	COMPLETE PWB SWX-87
19	X-4624-593-2	HOUSING (FRAME) ASSY
* 20	4-660-019-01	KEYBOARD, PLATE
21	4-660-020-01	COVER, HINGE
22	1-960-827-51	HARNESS (2PIN)
23	A-8067-316-A	COMPLETE PWB CNX-152
24	4-653-506-13	SHEET (MODEM)
25	1-477-114-21	KEYBOARD UNIT (US)
* 26	1-763-809-11	FAN, DC (WITH HEATSINK)
27	4-660-523-01	SHEET (CPU), THERMAL
28	4-662-258-01	SHEET (MS), INSULATING
29	A-8067-323-A	COMPLETE PWB IFX-180
30	1-823-814-11	CABLE, FLEXIBLE FLAT 12P
31	X-4624-494-1	ASSY BRACKET WIRE
32	1-761-380-23	CARD, MODEM
33	X-4624-743-1	ASSY COVER (BATTERY LOCK)
34	6-700-666-01	(R505EL, R505ELK)... IC HYS64V16220GDL-7.5-C2
35	4-662-355-01	(R505ES, R505ESK, R505ESP)... SHEET (WL), INSULATING
36	1-761-495-11	(R505ES, R505ESK, R505ESP)... CARD, WIRELESS LAN
37	1-756-038-21	BATTERY, NICKEL HYDROGEN
* 38	4-660-056-01	BRACKET (CPU)
* 39	4-660-024-01	BRACKET (VGA)
40	4-654-239-01	INSULATING SHEET
41	4-660-018-02	INSULATOR (BOTTOM)
42	A-8067-325-A	COMPLETE PWB CNX-154
43	1-779-745-31	JACK, DC
44	1-961-555-11	HARNESS (POWER 2P)
45	A-8067-324-A	COMPLETE PWB CNX-153
46	1-793-100-11	CONNECTOR, USB
47	1-823-815-11	CABLE, FLEXIBLE FLAT 10P
* 48	4-660-023-01	PLATE (PC CARD)
49	1-816-270-11	CONNECTOR, PC CARD
50	A-8067-317-A	COMPLETE PWB CNX-151
51	1-816-281-11	JACK, SMALL TYPE (MICROPHONE)
52	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONE)

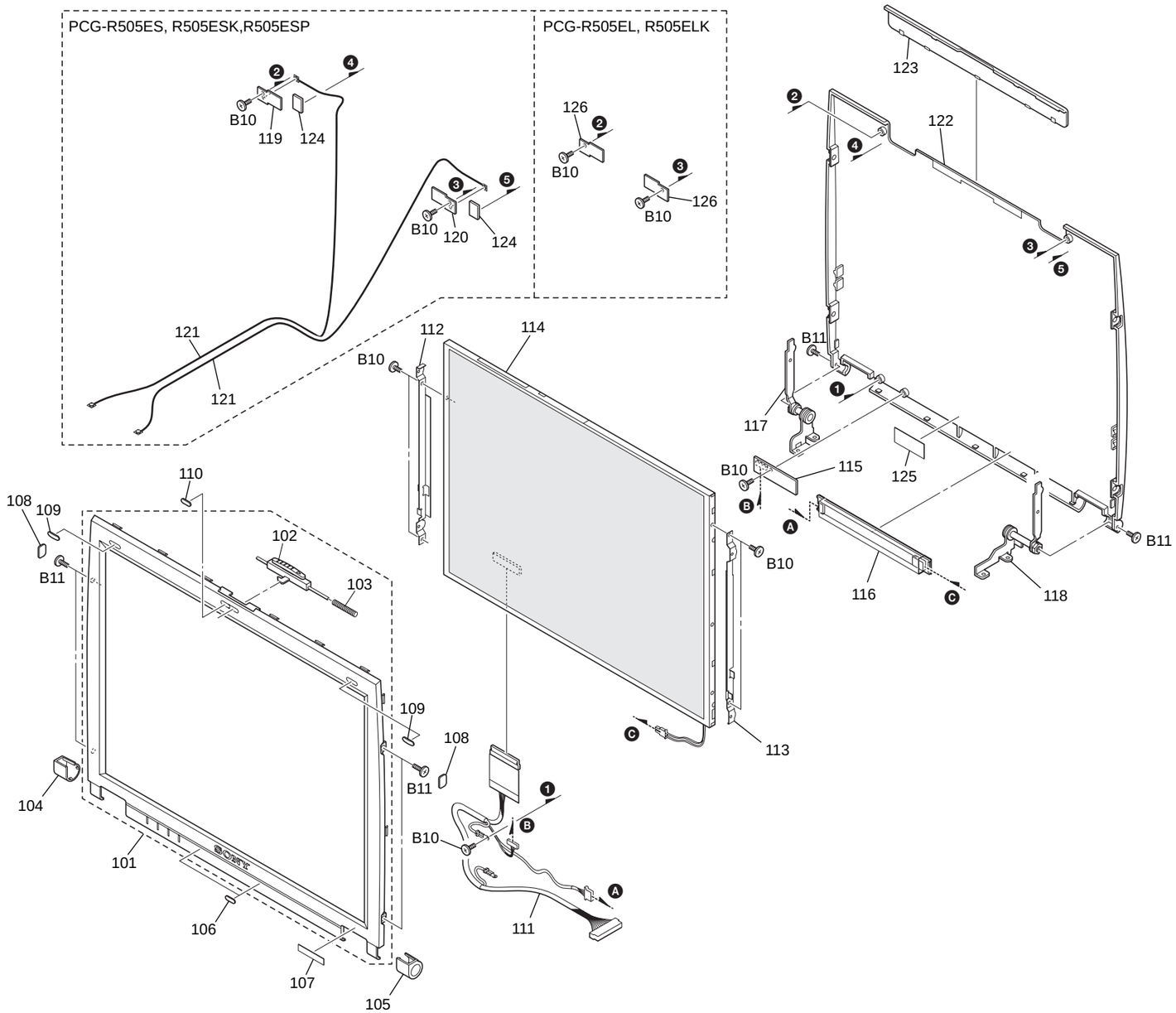
Ref.No.	Part No.	Description
53	1-823-816-11	CABLE, FLEXIBLE FLAT
54	4-654-610-03	COVER AIR DUCT
55	X-4624-450-1	HOUSING (BOTTOM) ASSY
56	4-662-966-01	SPACER (VGA)
57	4-663-912-01	(R505ES, R505ESK, R505ESP)... ADHESIVE TAPE (5X80)
58	4-662-893-01	SHEET, POWER HEAT SINK GROUND
59	4-663-129-01	PLATE (PALMREST), INTERCEPTION
60	4-662-968-01	REINFORCEMENT, KEYBOARD
61	X-4625-015-2	COVER (REAR L) ASSY
62	X-4623-577-5	LID (DOG) ASSY
63	1-961-661-12	HARNESS, RJ-45
64	4-660-016-01	COVER (REAR R)
65	4-657-622-01	FOOT (R2)
66	1-683-865-11	PWB, FLEXIBLE PRINT
* 67	4-660-022-01	BRACKET (HDD)
69	1-790-750-13	FPC (HDD)
70	A-8059-666-A	(R505ES, R505ESK, R505ESP)... ASSY HDD 40GB (T, 20, F) (S)
70	A-8059-226-A	(R505EL, R505ELK)... HDD (30GB, IC25N030ATCS04-0) (S)
71	4-641-449-01	FOOT (F)
72	X-4624-453-1	DOOR (VGA) ASSY
73	A-8110-724-A	(R505ES, R505ESK, R505ESP)... MBX-62 (256A) (S)
73	A-8110-726-A	(R505EL, R505ELK)... MBX-62 (128A) (S)
74	4-649-669-11	CUSHION IFX
* 75	4-660-052-01	HOLDER, ALMADOR
* 76	4-660-053-01	FIN, ALMADOR
77	4-660-067-01	COVER (BOTTOM R)
78	4-660-524-01	SHEET (COIL), THERMAL
79	4-662-616-01	GASKET (FAN 1)
80	4-662-778-01	SHEET (HDD), SHIELD
81	4-662-843-01	SHEET (CS), SHIELD
82	4-662-881-02	CUSHION, KEYBOARD
83	4-662-354-01	COVER (HDD)
84	6-701-337-11	(R505ES, R505ESK, R505ESP)... IC RH80530GD009512
84	6-700-582-11	(R505EL, R505ELK)... IC RH80530GD006512
85	4-664-561-01	ADHESIVE TAPE
86	4-665-662-01	SPACER (HINGE) (2)
B1	4-662-967-01	SCREW (2 TAPPING) (2X4)
B2	4-662-756-01	SCREW (1.4 TAPPING) (1.4X3.5)
B3	4-654-273-31	ACE (M2), LOCK (2X3.5)
B4	4-654-273-21	ACE (M2), LOCK (2X13)
B5	4-651-989-31	SPACER (MBX)
B6	4-635-966-01	SCREW (HEX)
B7	4-635-301-01	SCREW M3X4
B8	4-644-492-01	ACE (M2), LOCK (2X6)
B9	4-654-273-01	ACE (M2), LOCK (2X5)
B10	4-645-016-01	ACE (M2) (DIA. 4.6), LOCK (2X3)

* When change the CPU (ref. 84), refer to “Replacing the CPU” on page 4-1 and 4-2.



* When change the CPU (ref. 84), refer to “Replacing the CPU” on page 4-1 and 4-2.

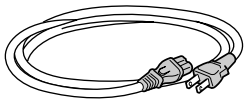
3-2. LCD Section



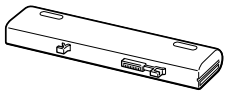
Ref.No.	Part No.	Description
101	X-4624-594-2	HOUSING (BEZEL) ASSY
102	4-660-030-01	LATCH
103	4-639-623-11	SPRING (LATCH), COIL
104	4-660-035-01	COVER (DL)
105	4-660-036-01	COVER (DR)
106	4-660-039-01	BLIND (LCD B), HOLE
107	4-663-773-11	(R505ESP)...LABEL (ID) (U)
107	4-663-773-21	(R505ESK)...LABEL (ID) (U)
107	4-663-773-31	(R505ES)...LABEL (ID) (U)
107	4-663-773-41	(R505EL)...LABEL (ID) (U)
107	4-663-773-81	(R505ELK)...LABEL (ID) (U)
108	4-652-933-02	BLIND (SIDE), HOLE
109	4-660-038-01	BLIND (LCD), HOLE
110	4-652-938-02	CUSHION (LATCH)
111	1-961-579-11	HARNESS (LCD)
* 112	4-660-031-01	BRACKET (LCD-L)
* 113	4-660-032-01	BRACKET (LCD-R)
114	A-8059-714-A	LCD (12.1)(H)(S)
115	A-8067-333-A	COMPLETE PWB LEX-32
116	1-476-317-12	INVERTER UNIT
* 117	4-660-033-01	TILT UNIT (L)
* 118	4-660-034-01	TILT UNIT (R)
119	A-8067-327-A	(R505ES, R505ESK, R505ESP)... COMPLETE PWB IFX-182
120	A-8067-328-A	(R505ES, R505ESK, R505ESP)... COMPLETE PWB IFX-183
121	1-823-844-11	(R505ES, R505ESK, R505ESP)... CABLE, COAXIAL
122	X-4624-449-1	HOUSING (DISPLAY) ASSY
123	4-660-029-01	COVER (DISPLAY)
124	4-662-650-01	(R505ES, R505ESK, R505ESP)... GASKET (W-LAN)
125	4-649-669-11	CUSHION IFX
126	4-663-174-02	(R505EL, R505ELK)...SPACER (W-LAN)
B10	4-645-016-01	ACE (M2) (DIA. 4.6), LOCK (2X3)
B11	4-643-356-01	SCREW (M2X5)

3-3. Accessories

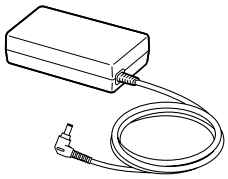
201
Power Cord



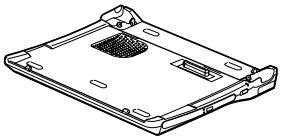
202
Battery Pack



203
AC Adaptor



204
Docking Station (PCGA-DSM51)



* The main unit is not assigned with a part number. Refer to the PCGA-DSM51 Service Manual (9-874-565-01).

Ref.No.	Part No.	Description
		ACCESSORIES
		***********
⚠201	1-757-562-21	CORD, POWER
202	A-8067-456-A	BP2R (U) ASSY (S)
⚠203	1-477-205-31	ADAPTOR, AC
	4-646-847-11	(R505ELK, R505ESK)... W2K FIRST STEP GUIDE
	4-664-856-01	QUICK START
		LOOK AT EXPLODED VIEWS OF THE PART
		************************************
204		PCGA-DSM51

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

CHAPTER 4.

OTHERS

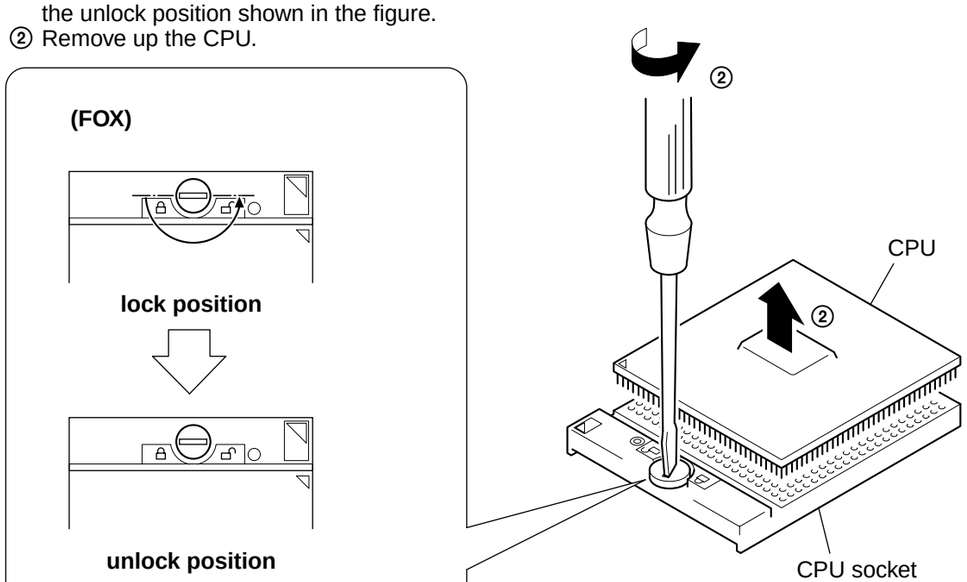
4-1. Replacing the CPU

Note: We have two kinds of CPU for this set, and either of them is used.
Two kinds of CPU have differences in the lock position and the unlock position.

1. Socket configuration 1

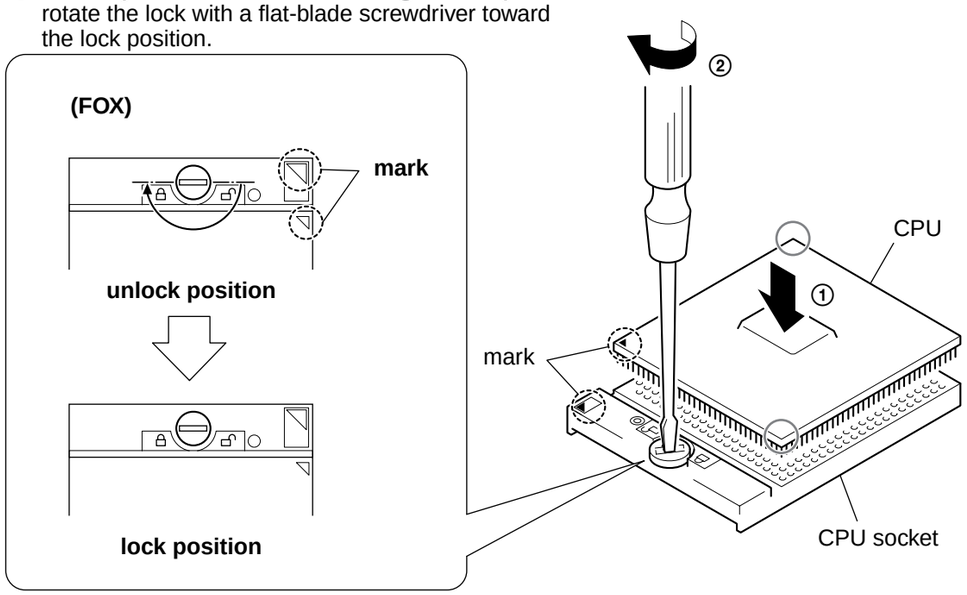
1. How to remove the CPU

① Rotate the lock with a flat-blade screwdriver toward the unlock position shown in the figure.
② Remove up the CPU.



2. How to install the CPU

① Position the mark on the CPU to the mark on the CPU socket and put in all pins to the holes on the CPU socket.
② Pressing two corners marked with ◯ in the figure, rotate the lock with a flat-blade screwdriver toward the lock position.

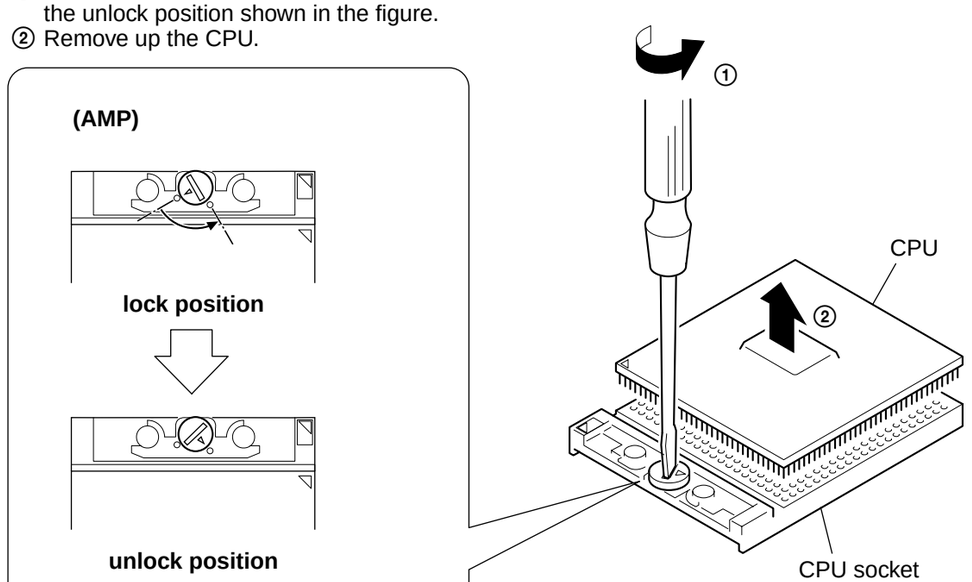


Note: Lock the CPU properly, or operation becomes unstable.

2. Socket configuration 2

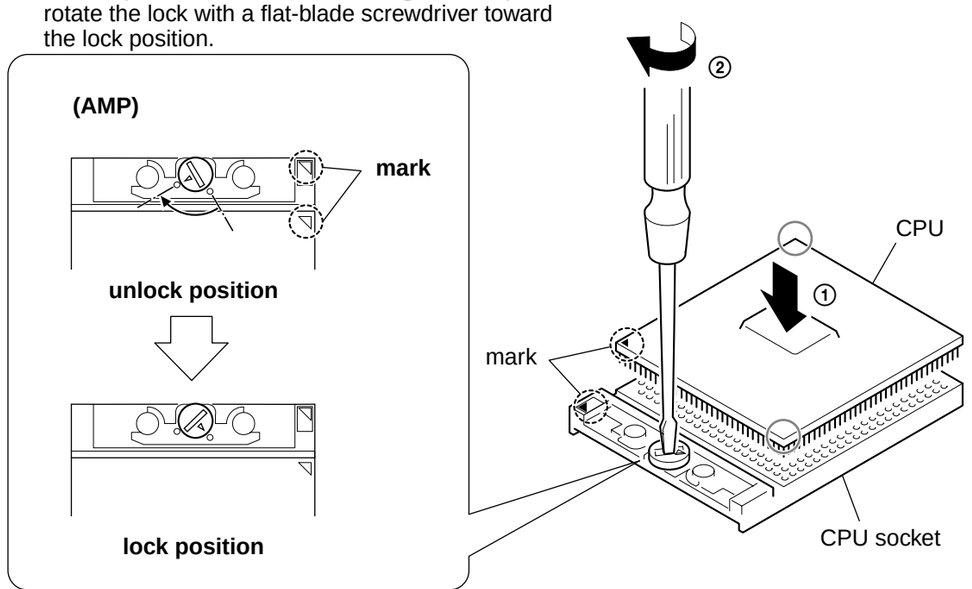
1. How to remove the CPU

① Rotate the lock with a flat-blade screwdriver toward the unlock position shown in the figure.
② Remove up the CPU.



2. How to install the CPU

① Position the mark on the CPU to the mark on the CPU socket and put in all pins to the holes on the CPU socket.
② Pressing two corners marked with ◯ in the figure, rotate the lock with a flat-blade screwdriver toward the lock position.



Note: Lock the CPU properly, or operation becomes unstable.

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List of PCG-R505 Series for American Area (As of May, 2002)

Model	Service Manual Parts No.	
PCG-R505TE PCG-R505TEK PCG-R505TS PCG-R505TSK	9-872-185-11	
PCG-R505DE	9-874-420-11	
PCG-R505TL PCG-R505TLK	9-874-442-11	
PCG-R505JE PCG-R505JEK PCG-R505JEP PCG-R505JL PCG-R505JLK PCG-R505JLP PCG-R505JS PCG-R505JSK PCG-R505JSP	9-874-469-01	
PCG-R505AFE	9-874-490-01	
PCG-R505DL PCG-R505DS PCG-R505DSK PCG-R505DSP	9-874-513-01	
PCG-R505EL PCG-R505ELK PCG-R505ES PCG-R505ESK PCG-R505ESP	9-874-557-01	☜

☜ : Additional Model

American Area : North, Central and South Americas

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English
2002E0500-1
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Revision History

Suffix	Ver.	Date	Contents	QM No.
-01	Ver. 1	2002.05.27	First Edition	

<Remarks>